EXAMPLES OF EVENTS THAT ARE PAIRWISE INDEPENDENT BUT NOT MUTUALLY INDEPENDENT

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Abstract. *The concept of independence is central to Probability Theory. When we have more than 2 random events we have different types of independence: ensemble independence and pairwise independence. In this work, we will give examples of N random events A_1, A_2, A_3, $\ldots$, A_N, $N \geq 3$, which are not independent in aggregate, but for each of their subset of $k, 1 < k < N$ events $A_{(n_1)}.A_{(n_2)}.A_{(n_3)}. \ldots .A_{(n_k)}$ these events are mutually independent (and therefore pairwise independent). The examples are constructed using a symmetric die with 2^{N-1} faces, which are colored N different colors, conventionally denoted by the numbers $1, 2, 3, \ldots, N$.*

Key words: independence, pairwise independence, mutual independence.

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